SCHOOL, DIVISION, REGION, AND NATIONAL SCIENCE AND TECHNOLOGY FAIR GUIDEBOOK

FIRST EDITION | MAY 2023

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School, Division, Region, and National Science and Technology Fair Handbook
First Edition May 2023

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LIST OF ACRONYMS AND ABBREVIATIONS

BOJ	Board of Judges
DSTF	Division Science and Technology Fair
IACUC	Institutional Animal Care and Use Committee
IRB	Institutional Review Board
ISEF	International Science and Engineering Fair
LS-I	Life Science Individual Category
LS-T	Life Science Team Category
MCS-I	Mathematics and Computational Science Individual Category
MCS-T	Mathematics and Computational Science Team Category
MIM	Mathematics Investigation and Modeling
NDA	Non-Disclosure Agreement
NSTF	National Science and Technology Fair
PHBAs	Potentially Hazardous Biological Agents
PS-I	Physical Science Individual Category
PS-T	Physical Science Team Category
RIM-I	Robotics and Intelligent Machines Individual Category
RIM-T	Robotics and Intelligent Machines Team Category
RRI	Regulated Research Institutions
RSTF	Regional Science and Technology Fair
SRC	Scientific Review Committee
STEM	Science Technology Engineering and Mathematics
TWG	Technical Working Group

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OVERVIEW

The National Science and Technology Fair (NSTF) is an annual Science, Technology, Engineering and Mathematics (STEM) research and innovation competition organized by the Department of Education through the Bureau of Curriculum Development. Conducted among junior and senior high school learners, the competition starts from the school level which progresses through the division, regional, and national levels. Around 3,000 research projects from public and private high schools are evaluated by the Scientific Review Committees (SRC), and are pared down to an average of 80 STEM projects competing in the national level every year.

NSTF showcases the top young STEM-oriented high school learners and the culmination of their acquired and applied scientific and mathematical knowledge, skills, and attitudes manifested through STEM investigations with the development of effective and efficient solutions to address local and global issues and challenges. The competition also celebrates the achievement and collaboration of the local research communities established through the initiatives of the junior and senior high school learners with the extended efforts and support of parents, teachers, school administrators and staff, pool of experts from research institutions, government agencies and units, organizations, industries, and other stakeholders.

Through NSTF, thousands of learners are challenged to go beyond their classroom studies to do independent project-based research which highlights their competence in the application of STEM process skills, design thinking skills, and 21st-century skills in real-life setting. They work independently or in teams to address community problems and/or address research gaps in their chosen field of interest such as Life Sciences, Physical Sciences, Robotics and Intelligent Machines, Engineering, and Mathematics. NSTF also provides an avenue to encourage and inspire Filipino learners from the different regions of the country to pursue STEM careers as researchers, scientists, technology experts, engineers, and mathematicians who will provide positive and significant contributions in the country.

NSTF serves as a STEM talent pipeline which selects young STEM enthusiasts who will compete in international research and innovation competitions, mainly the annual International Science and Engineering Fair (ISEF), the world's largest and premier pre-college STEM competition in the United States participated by thousands of student researchers wherein every ISEF finalist is celebrated by their fellow attending learners, parents, teachers, mentors, sponsors, organizers, experts/judges, government units, and the public from 80 countries, regions and territories as they take part in the global research endeavor to design and develop STEM advancements for sustainable development.

OBJECTIVES

The **National Science and Technology Fair (NSTF)** aims to:

- ☑ Develop and strengthen the Science, Technology, Engineering, and Mathematics (STEM) skills of learners through the conduct of research projects that address local, national and/or global issues, concerns, and problems;
- ☑ Provide an avenue for high school learners to communicate research findings and showcase their investigations and innovations to the STEM community and the public;
- ☑ Foster a culture of creativity and innovation among the youth;
- ☑ Promote STEM awareness and interest among learners, teachers, and the public;
- ☑ Provide an opportunity for collaboration and establish research networks between and among the learners, stakeholders, and the community.
- ☑ Identify the most creative and innovative student researchers who shall be recipients of the Gawad AgLiTekno, and Young Scientist Awards, and as Philippines delegates to international STEM research competitions.

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FAIR FEATURES

TUKLAS

A Research Project Fair

A STEM research competition that provides opportunities for Junior and Senior High School learners to showcase their research projects based on their field of interest and/or real-world problems, issues, and concerns.

INNOVATION EXPO

GAWAD AgLiTekno

A Technology Innovation competition which aims to recognize the most creative and market viable project addressing major issues in food safety, water conservation, renewable energy, cyber security, road safety, health, disaster mitigation, agriculture, and environment.

STEM ACADEMY

A conference designed to provide the participants with learning opportunities and experiences through various talks promoting innovation, creativity, and excellence in the fields of STEM.

AGHAMBAYANIJUAN

A public community exhibition of the partners in STEM Research and Innovation showcasing their latest innovative products, technologies, and services offered to the different sectors of the community.

A STEP-BY-STEP GUIDE TO STEM RESEARCH INVESTIGATION

1. Choose an area of interest or problem to solve through STEM research.
2. Gather relevant information to better understand the topic's impact.
3. Identify research gaps and ways to address limitations of previous solutions.
4. Develop specific research questions and variables.
5. Formulate hypotheses and predict expected outcomes.
6. Choose appropriate and ethical research methodologies.
7. Write a project plan with the help of an adviser or PROJECT consultant.
8. Keep a data logbook to record activities, procedures, literature, raw data, and correspondence.
9. Check the availability of resources, facilities, equipment, and experts.
10. Communicate with regulated research institutions and qualified scientists for technical assistance.
11. Obtain necessary permits for research involving humans, animals, chemicals, and other biological agents.
12. Conduct experiments, observe, measure, and record data.
13. Organize and present data in tables and/or graphs.
14. Analyze data, draw conclusions, and align with research questions and hypotheses.
15. Explain data trends and compare results with previous studies.
16. Discuss implications of results and recommend future studies to expand investigations.

Note: *MIM projects need not follow the suggested steps.*

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ROLES AND RESPONSIBILITIES OF LEARNERS AND ADULTS

STUDENT RESEARCHER

- Understands and abides by the ethical and safety considerations, national laws, and updated rules and regulations set by the NSTF and ISEF in planning and performing STEM research investigations.
- Identifies a research topic/problem and formulates a plan to address the problem.
- Conducts a comprehensive review of related literatures about the topic/problem.
- Writes a research plan using the prescribed format. Prepares other documents to support the project plan such as budget plan, timeline of activities, risk assessment, and target deliverables.
- Communicates with qualified scientists from regulated research institutions (RRI) to ask for technical assistance to improve the research plan and request for permission to conduct experimentation in the RRIs laboratory/ facility with the supervision of a consultant/laboratory assistant.
- Completes all necessary ISEF forms based on the nature of the chosen research study.
- Secures the original copies of signed ISEF forms and certification from Scientific Review Committee (SRC), Institutional Review Board (IRB) and/or Institutional Animal Care and Use Committee (IACUC) before starting the research work.
- Records the details of the preliminary research project-related activities, experimentation proper, raw data and summary of the consultations with the research adviser and qualified scientist/laboratory assistant in a data logbook.
- Performs the experimentation with the guidance of the research adviser and qualified scientist/laboratory assistant.
- Takes necessary and appropriate photo-documentation.
- Conducts data analysis with the guidance of the research adviser and/or statistician.
- Writes the research paper following Chicago Manual of Style formatting and citation.
- Chooses the appropriate category that most accurately fits the nature of the study and prepares a brief presentation about the research project.
- Presents the project display poster and answers questions and clarifications from the judges and the general public.

ADULT ADVISOR/SPONSOR

- May be a teacher, parent, professor and/or a qualified scientist who will directly oversee student researchers throughout the course of the STEM research project.
- Should have a solid background in the area of student research. If not, carry out a literature review to know more about the pre-requisite information regarding the main topic/problem, entities/test subjects, variables, methodologies, and other relevant related literatures needed to better understand the rationale and basics of the research project.
- Must be familiar with the safety and ethical considerations, national laws and updated rules and regulations set by NSTF and ISEF in planning and performing STEM research.
- Orients learners on the following: a) roles and responsibilities of the researcher, advisor (adult sponsor), qualified scientist and designated supervisor b) adherence to the rules, regulations, and laws.
- Communicates with the parent/guardian of student researchers regarding the rationale of conducting STEM researches and the general details on how research activities will be carried out. Secures signed copies of parental/ guardian consent for the participation of learners in the research endeavor.
- Reviews the necessary ISEF forms and research proposal to ensure that learners are abiding by the rules and regulations.
- Ensures the health and safety of learners by identifying potential hazards and evaluates risks involved in all research-related activities with the researchers. Familiarizes learners on how to minimize research-related risks and carry out necessary measures during emergencies.

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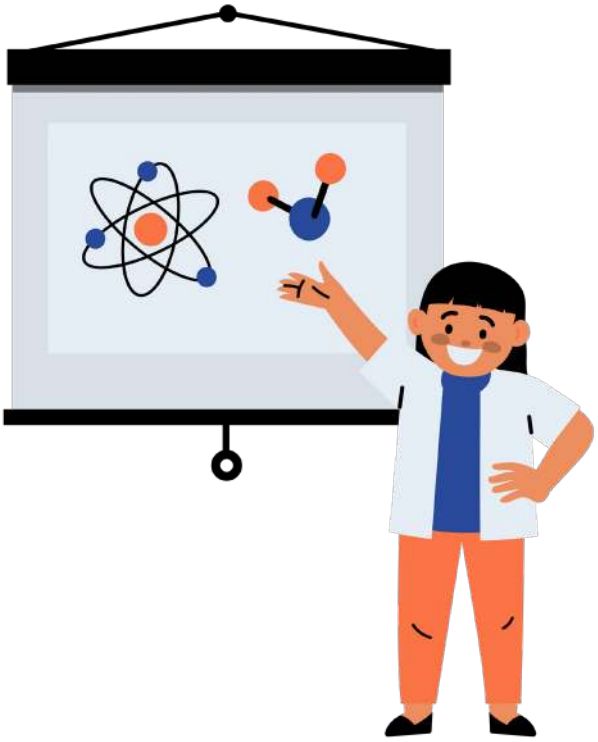
- Collaborates with RRIs to ask for technical assistance from their pool of experts and permission to use their laboratory facilities. Prepares communication letters, memorandum of understanding/agreement and other necessary requirements.
- Monitors the conduct of research activities within the projected workplan. Asks relevant questions to researchers before, during and after experimentation to evaluate and strengthen their understanding of the technical know-how of the research process.
- Allows student researcher consultation during the most convenient time for both parties (learner and adviser).
- Checks the correct usage, syntax and grammar of the research paper, and display poster of the student researchers.
- Guides student researcher in choosing the appropriate category that most accurately fits the nature of the study.
- Conducts local oral defense presentations and provides comments and suggestions to further improve the content and delivery of the presentation.
- Ensures that the learner is physically, emotionally, and mentally ready for the oral defense presentation.



QUALIFIED SCIENTIST

- A qualified scientist should have earned a doctorate degree and/or at least 3 years of extensive experience and expertise in a STEM discipline related to the learner's research investigation.
- Can also serve as the adult sponsor if the abovementioned qualifications are met.
- Needed for research involving human participants, animals, hazardous chemicals, and/or other PHBAs.
- Must be thoroughly familiar with ethical and safety considerations, national laws, and updated rules set by NSTF and ISEF that relate to the nature of the research project.
- Reviews and provides comments and suggestions to further refine the STEM project proposal. Approves the learner's project plan.
- Reviews and completes the required documentation in the ISEF forms and data logbook.
- May or may not come from the RRI where experimentation is to be conducted; if not from RRI, a separate designated supervisor from the RRI must be present to supervise the experimentation conducted at the RRI.
- Ensures the proper training of student researchers and/or designated supervisors in carrying out the necessary procedures.

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DESIGNATED SUPERVISOR

- Must be familiar with the learner's project and underwent/undergoes relevant trainings related to the area of study of the researcher.
- May also serve as the adult sponsor for the project.
- If the project involves the use of vertebrate animals, the designated supervisor must be well-equipped with the relevant knowledge and skills on proper handling and ethical concerns with the use of the test animals.
- Provides direct supervision during conduct of the experimentation.
- Reviews and completes the required documentation in the ISEF forms and data logbook.

INSTITUTIONAL REVIEW BOARD

An Institutional Review Board (IRB) is a committee that must evaluate the potential physical or psychological risk of research involving human subjects. All proposed human research must be approved prior to experimentation. This includes any surveys or questionnaires to be used in a project. An IRB must consist of at least three members: a science teacher, a school administrator, and a psychologist, psychiatrist, medical doctor, physician's assistant, or registered nurse. The adult sponsor, parents, qualified scientist, or the designated supervisor overseeing a project must not serve on the IRB reviewing that project.

SCIENTIFIC REVIEW COMMITTEE (SRC)

- An SRC must consist of a minimum of three individuals with at least 3 years of extensive experience and expertise in STEM research project and/or graduate degrees in STEM related disciplines, whereas it is recommended to diversify the expertise of the committee (e.g., Life Science research SRC: agronomist, STEM professor/ educator, biomedical scientist).
- Orientation of SRC members regarding the national laws, safety and ethical considerations, and the rules and regulations set by NSTF and ISEF needed to be adhered in conducting STEM Research Project.
- Must be thoroughly familiar with ethical and safety considerations, national laws, and updated rules and regulations set by NSTF and ISEF.
- Checks and evaluates student research project, certifications, research plan, documentation, evidence of proper supervision, and project display in compliance with NSTF and ISEF rules, applicable laws and regulations at each level of the STEM fair competitions. Examines research projects for the following:

  a. Evidence of literary research
  b. Evidence of proper supervision
  c. Consistency of completion of the required information, signatures and dates in the ISEF forms and data logbook
  d. Use of accepted and appropriate research methodologies
  e. Evidence of risk assessment and appropriate literatures search and attribution
  f. Search for alternatives to animal use
  g. Humane treatment of animals
  h. Documentation of substantial expansion for continuation projects
  i. Compliance with ISEF ethics statement

NOTE: *To avoid conflict of interest, no adult sponsor, parent or other relative of the student, qualified scientist, or designated supervisor who oversees the project, may serve on the SRC or IRB reviewing the STEM research projects.*

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CONTEST MECHANICS

TUKLAS

A Research Project Fair

ELIGIBILITY

- The competition is open to Grades 9-12 learners of both public and private high schools in the Philippines who have not reached the age of 20 on or before May 1 of the current school year.
- Learners may work individually or in teams with 2-3 members from the same school. Each learner is only allowed to submit one (1) research project in one (1) of the four (4) research categories: Life Science, Physical Science, Robotics and Intelligent Machines, and Mathematics and Computational Sciences. The project should include no more than 12 months of continuous research and should not include research activities performed before January of the previous school year. (e.g., For school year 2023-2024 with the target opening of classes on August 2023 and ISEF on May 2024, research projects may be accomplished within 1-12 month/s starting from January 2023 to January 2024).
- The top three (3) winners in each category of TUKLAS will be screened by the division Scientific Review Committee (SRC) and qualifiers will advance to the Division Science and Technology Fair (DSTF).
- First and second placers in each category will be screened by the regional SRC and qualifiers will advance to the Regional Science and Technology Fair.
- First and second placers in each category in the Regional Science and Technology Fair (RSTF)will be screened by the national SRC. The qualifiers will advance to the National Science and Technology Fair (NSTF).

RESEARCH CATEGORIES

The STEM research competition is divided into four (4) categories. The student researchers and advisor should carefully consider which category best describes the research project. They may enter the competition as an individual or as a team.

Life Science

This category deals with living organisms such as plants, microorganisms, and animals including humans and their life processes. Projects that involve systematic observation, development, experimentation, and understanding of living things and biological processes belong to this category. Subcategories include Animal Sciences, Biomedical and Health Sciences, Cellular and Molecular Biology, Microbiology, Plant Sciences, and Translational Medical Science.

Physical Science

This category deals with the nature and properties of non-living matter, energy and systems. Projects that involve systematic observation, development, experimentation, and understanding of materials and phenomena belong to this category. Subcategories include Astronomy, Chemistry, Earth and Environmental Sciences, Energy, Engineering Technology, Statics and Dynamics, Sustainable Materials and Design, Environmental Engineering, Materials Science, and Physics.

Robotics and Intelligent Machines

This category deals with the design, implementation, and use of prime technologies and machine intelligence in providing a wide range of innovative solutions and

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advancements across multiple disciplines to reduce reliance on human intervention. Subcategories include Biomechanics, Cognitive Systems, Control Theory, Machine Learning, and Robot Kinematics.

Mathematics and Computational Science

Mathematics deals with the measurement, properties, and relationships of quantities and sets using numbers and symbols. Subcategories include Algebra, Analysis, Combinatorics, Graph Theory, Game Theory, Geometry and Topology, Number Theory, and Probability and Statistics.

Computational Science deals with the development and implementation of mathematical models and simulations to understand natural systems and processes, and solve STEM problems using computers. Subcategories include Computational Biology and Bioinformatics, Computational Chemistry, Computational Mechanics, and Theoretical, Computational and Quantum Physics.

Note: *For the full description of the sub-categories, visit the official website of ISEF category selection and sample project titles.*

GENERAL PROCEDURES AND GUIDELINES

A. School Level Science & Technology Fair (SSTF)

Before:

1. Orientation of learners regarding the processes and guidelines in planning and conducting STEM investigations.
2. Identification of the school level Scientific Review Committee (SRC) which will evaluate project proposals, required forms, certifications/ pre-approvals, data logbooks, and research manuscripts. Orientation of SRC members regarding the national laws, safety and ethical considerations, and the rules and regulations set by NSTF and ISEF needed to be adhered in conducting STEM research project.
3. Writing of the research proposal and completion of the data logbook entries for the planning of the project.
4. Identification of the research category that best describes the project and presentation of research proposals for further revision and approval.
5. Orientation and agreements with parents/ guardians on the responsibilities of learners and supervisory adults in the specific arrangements during the research activity engagement.
6. Communication with the preselected qualified scientist/designated supervisor and Regulated Research Institution (RRI).
7. Submission of Memorandum of Agreement/ Understanding and other documentary requirements (if applicable) to the research institution prior to experimentation.
8. Completion of the required ISEF forms and certifications/pre-approvals before experimentation.
9. Conduct of the research and completion of required ISEF forms and data logbook entries for the accomplished research activities.
10. Writing of research manuscript and preparation for project display and oral defense.
11. Meeting of the department head/chairman and Technical Working Group (TWG) for the planning of the conduct of the School Science and Technology Fair (SSTF).
12. Issuance of school memorandum regarding the conduct of SSTF which includes the mechanics, guidelines, criteria, schedule of activities, and TWG anchored on the Division, Region and National Science and Technology Fair Memorandum.
13. Signing of non-disclosure agreements with the adult sponsor, SRC and TWG members.
14. Submission of three (3) hard and digital copies of properly color-coded and sequenced (as indicated in the memorandum) manuscripts, ISEF forms, data logbook, and other entry requirements (student media release forms, project evaluation forms, medical certificate, etc.) to the TWG on or before the deadline.
15. Forwarding of submitted manuscripts to the SRC/ Board of Judges (BOJ) for project pre-evaluation guided by the attached criteria.
16. Issuance of school memorandum regarding the results of the SRC review and the list of qualifiers for the SSTF and final judging.
17. Returning of the qualified SSTF manuscripts and other entry requirements for further revisions based on the listed comments and suggestions by the SRC in the Review and Recommendation Report (RRR).
18. Final meeting of the TWG for the preparations needed for the conduct of the SSTF.
19. Online resubmission of the digital copies of manuscripts, other entry requirements and PowerPoint presentation for the STEM Congress to SSTF focal person.

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During

1. Registration of participants and submission of the three (3) softbounded hard copies of color-coded manuscripts with tags to identify the revisions done based in the RRR.
2. It is also suggested for the student researchers to be in their smart casual during the conduct of SSTF.
3. Set-up for the project display that conforms with the display and safety regulations.
4. Project Display inspection by the assigned TWGs to ensure adherence to the prescribed project display rules and guidelines.
5. Conduct of the SSTF opening program and on-site judging of the entries.
6. SRC/BOJ final evaluation of the qualified research entries through the STEM Congress.
7. Deliberation of the SRC/BOJ and awarding of the Top 5 winners for the individual and team projects in each research category. Other special awards (e.g., Best Poster, Best Presenter/s, Peers' Choice Award, Best Shoutout) and sponsored honorable awards by institutions/organizations may also be given to learners and advisors.
8. Orientation of the student researchers and advisors of the Top 3 entries for the individual and team projects in each research category for further comments, suggestions and other preparations needed as school representatives to the Division Science and Technology Fair (DSTF).

After

1. Issuance of school memorandum regarding the winners of the SSTF.
2. Final revision of the manuscripts and other entry requirements incorporating the recommendations by the SRC/BOJ.
3. Re-submission of the revised manuscripts and other entry requirements to the school SRC for final quality assurance.
4. Submission of the Top 3 Entries to the Division Level Science Fair Technical Working Group
5. Conduct of STEM cliniquing to improve learners' presentation skills and preparation of Poster Displays.

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B. Division Science & Technology Fair (DSTF)

Before:

1. Planning and consultation meeting spearheaded by the Division Education Program Supervisors in Science and Math with the school heads, and science and mathematics department heads, coordinators/focal persons, and TWG.
2. Issuance of the division memorandum on the conduct of the DSTF aligned with the Regional and National Memorandum.
3. Identification of the division level SRC based on the criteria set by NSTF and ISEF. The division-level SRC will evaluate the research manuscripts, required forms, certifications/pre-approvals, and data logbooks of the school entries to the DSTF.
4. Orientation of SRC members regarding the national laws, safety, and ethical considerations, and the rules and regulations set by NSTF and ISEF that needs to be adhered to when conducting STEM investigations.
5. Signing of non-disclosure agreements with the SRC and TWG members.
6. Submission of the three (3) hard and digital copies of research manuscripts and other entry requirements of the Top 3 entries for the individual and team projects in each research category to the DSTF focal person with attached report of the conduct of SSTF and endorsement by the school head on or before deadline.
7. Forwarding of submitted manuscripts to the SRC/BOJ for project pre-evaluation guided with the attached criteria and RRR.
8. Issuance of division memorandum regarding the results of the SRC review and the list of qualifiers for the DSTF and final judging.
9. Meeting with the learners and advisors of the unqualified projects for the discussion of the disapproval/disqualification issues and their rights for an appeal period of three (3) days. An appeal can be requested by the student researcher and advisor through the submission of a letter for reconsideration addressed to the SRC chairman explicitly stating the valid explanations to reconsider the disqualification of the entry.
10. Returning of the qualified DSTF manuscripts and other entry requirements for further revisions based on the listed comments and suggestions by the SRC in the RRR.
11. Final meeting of the TWG for the preparations needed for the conduct of the DSTF.
12. Preparation of the 1-minute video presentation for the school shoutout.
13. Online resubmission of the digital copies of manuscripts, other entry requirements and PowerPoint presentation for the STEM congress to DSTF focal person with official endorsement by the school head to the division office.
14. Online pre-registration of participants (optional).

During:

1. Registration of participants and submission of the three (3) softbound hard copies of color-coded manuscripts (see Appendix 16) with tags to identify the revisions done based on the RRR.
2. Submission of the school shoutout and three (3) softbounded hard copies of color-coded manuscripts with tags to identify the revisions done based in the RRR. It is also suggested for the student researchers to be in their formal attire during the conduct of DSTF.
3. Inspection of the Project display, whereas the TWG may require learners to make revisions in the display boards in order to adhere to the prescribed rules and regulations.
4. Conduct of the DSTF opening program and on-site judging of the entries.
5. SRC/BOJ final evaluation of the qualified research entries through the STEM congress.
6. Deliberation of the SRC/BOJ and awarding of the Top 5 winners for the individual and team projects in each research category. Other special awards (e.g., Best Poster, Best Presenter/s, People's Choice Award, Peers' Choice Award, Best Shoutout) and sponsored honorable awards by institutions/organizations may also be given to learners and advisors.
7. Orientation of the student researchers and advisors of the Top 2 entries or the individual and team projects in each research category for further comments, suggestions and other preparations needed as division representatives to the Regional Science and Technology Fair (RSTF).

After:

1. Issuance of division memorandum regarding the winners of the DSTF and the schedule of cliniquing/mentoring/coaching of the regional representatives to the RSTF pre-evaluation of research projects.
2. Final revision of the manuscripts and other entry requirements by incorporating the recommendations of the SRC/BOJ.
3. Improving learners' presentation skills through the conduct of mock STEM congress.
4. Re-submission of the revised manuscripts and other entry requirements to the division SRC for the final quality assurance.

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C. Regional Level Science & Technology Fair

Before:

1. Planning and consultation meeting spearheaded by the Regional Education Program Supervisors (DEPS) in Science and Math with the division EPSs in science and mathematics, and other members of the RTWG.
2. Identification of the regional level SRC based on the criteria set by NSTF and ISEF. The regional level SRC will evaluate the research manuscripts, required forms, certifications/pre-approvals, and data logbooks of the division entries to the Regional Science and Technology Fair (RSTF).
3. Orientation of SRC members regarding the national laws, safety and ethical considerations, and the rules and regulations set by NSTF and ISEF that needs to be adhered to when conducting STEM investigations. Signing of non-disclosure agreements with the SRC members.
4. Signing of non-disclosure agreements with the SRC and TWG members.
5. Issuance of the regional memorandum regarding the conduct of RSTF which includes the mechanics, guidelines, criteria, schedule of activities, and TWG.
6. Submission of the three (3) hard and digital copies of research manuscripts and other entry requirements of the Top 2 entries for the individual and team projects in each research category to the RSTF focal person with attached report of the conduct of DSTF and endorsement by the Schools Division Superintendent on or before deadline.
7. Forwarding of submitted manuscripts to the SRC/ BOJ for project pre-evaluation guided with the attached criteria and RRR.
8. Issuance of regional memorandum regarding the results of the SRC review and the list of qualifiers for the RSTF and final judging.
9. Meeting with the learners and advisors of the unqualified projects for the discussion of the disapproval/disqualification issues and their rights for an appeal period of three (3) days. An appeal can be requested by the student researcher and advisor through the submission of a letter for reconsideration addressed to the SRC chairman explicitly stating the valid explanations to reconsider the disqualification of the entry.
10. Returning of the qualified RSTF manuscripts and other entry requirements for further revisions based on the listed comments and suggestions by the SRC in the RRR.
11. Final meeting of the TWG for the preparations needed for the conduct of the RSTF.
12. Preparation of the 1-minute video presentation for the division shoutout.
13. Online resubmission of the digital copies of manuscripts, other entry requirements and PowerPoint presentation for the STEM Congress to RSTF focal person with official endorsement by the division office to the regional office.
14. Online pre-registration of participants (optional).

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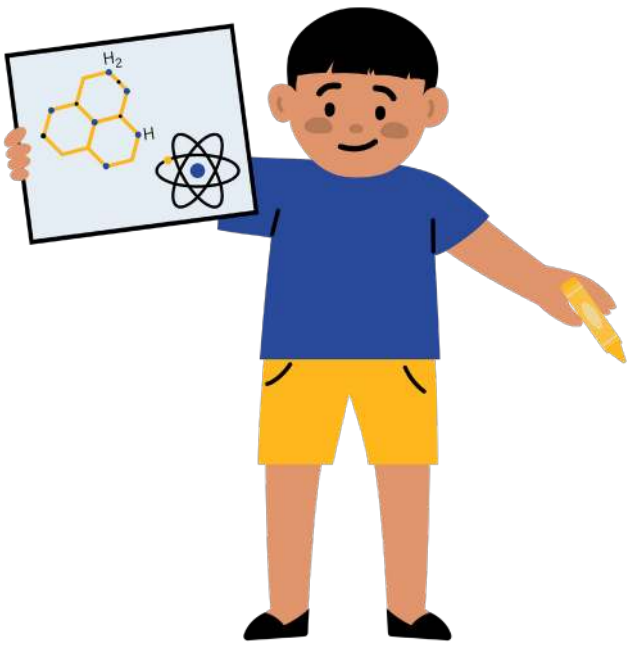
During:

1. Registration of the learner and teacher participants.
2. Submission of the division shoutout and three (3) softbounded hard copies of color-coded manuscripts with tags to identify the revisions done based in the RRR. It is also suggested for the student researchers to be in their smart casual during the conduct of RSTF.
3. Set-up the project display that conforms with the display and safety regulations.
4. Project display inspection whereas the TWG may require learners to make revisions in the display boards in order to adhere to the prescribed rules and regulations.
5. Conduct of the RSTF opening program and on-site judging of the entries.
6. SRC/BOJ final evaluation of the qualified research entries through the STEM Congress.
7. Deliberation of the SRC/BOJ and awarding of the Top 5 Winners for the individual and team projects in each research category. Other special awards (e.g., Best Poster, Best Presenter/s, People's Choice Award, Peers' Choice Award, Best Digital Shoutout, Most Innovative Award) and sponsored honorable awards by institutions/organizations may also be given to learners and advisors.
8. Orientation of the student researchers and advisors of the Top 2 entries for the individual and team projects in each research category for further comments, suggestions and other preparations needed as regional representatives to the NSTF.



After:

1. Issuance of regional memorandum regarding the winners of the RSTF and the schedule of cliniquing/ mentoring/coaching of the regional representatives to the NSTF pre-evaluation of research projects.
2. Final revision of the manuscripts and other entry requirements by incorporating the recommendations of the SRC/BOJ.
3. Improving learners' presentation skills through the conduct of mock STEM Congress.
4. Re-submission of the revised manuscripts and other entry requirements to the regional SRC for the final quality assurance.

D. National Level Science & Technology Fair

Before:

1. Planning and consultation meeting spearheaded by the National Science and Technology Fair Focal Persons.
2. Identification of the national level SRC based on the criteria set by NSTF and ISEF. The national-level SRC will evaluate the research manuscripts, required forms, certifications/pre-approvals, and data logbooks of the regional entries to the NSTF.
3. Orientation of SRC members regarding the national laws, safety and ethical considerations, and the rules and regulations set by NSTF and ISEF that need to be adhered to when conducting STEM investigations. Signing of non-disclosure agreements with the SRC members.
4. Signing of non-disclosure agreements with the SRC and TWG members.
5. Issuance of the national memorandum regarding the conduct of NSTF which includes the mechanics, guidelines, criteria, and schedule of activities.
6. Submission of the three (3) hard and digital copies of research manuscripts and other entry requirements of the Top 2 entries for the individual and team projects in each research category to the NSTF focal person with attached report of the conduct of RSTF and endorsement by the regional director on or before deadline.
7. Forwarding of submitted manuscripts to the SRC/ BOJ for project pre-evaluation guided with the attached criteria and Review and RRR.
8. Issuance of national memorandum regarding the results of the SRC review and the list of qualifiers for the NSTF and final judging.
9. Meeting with the learners and advisors of the unqualified projects for the discussion of the disapproval/disqualification issues and their rights for an appeal period of three (3) days. An appeal can be requested by the student researcher and advisor through the submission of a letter for

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reconsideration addressed to the SRC chairman explicitly stating the valid explanations to reconsider the disqualification of the entry.

10. Returning of the qualified NSTF manuscripts and other entry requirements for further revisions based on the listed comments and suggestions by the SRC in the RRR.

11. Issuance of regional memorandum regarding the list of qualified entries and names of official regional delegates and other participants based on the allowed number of representatives per region.

12. Final meeting of the TWG for the preparations needed for the conduct of the NSTF.

13. Preparation of the 1-minute video presentation for the regional shoutout, polo shirt uniform for the opening program, and souvenir items for the learners' mixer.

14. Online resubmission of the digital copies of manuscripts, other entry requirements and PowerPoint presentation for the STEM Congress to NSTF focal person with official endorsement by the regional office to the central office.

15. Online pre-registration of participants on or before the deadline.

During:

1. Registration and distribution of NSTF kits for the official regional delegates.

2. Submission of the regional shoutout and three (3) soft-bounded hard copies of color-coded manuscripts with tags to identify the revisions done based in the RRR.

3. Conduct of the regional poster-making activity.

4. Set-up for the project display that conforms with the display and safety regulations.

5. Project display inspection whereas the TWG may require learners to make revisions in the display boards in order to adhere to the prescribed rules and regulations.

6. Orientation of the student participants on the general guidelines and procedures for the opening ceremony, learners' mixer, on-site evaluation, STEM Congress, public viewing of exhibits, symposiums/ conferences, and awarding ceremony. Learners and other official delegates are encouraged to participate in all NSTF activities.

7. Conduct of the RSTF opening program and on-site judging of the entries.

8. SRC/BOJ final evaluation of the qualified research entries through the STEM Congress. It is suggested for the student researchers to be in their formal attire during the conduct of NSTF on-site evaluation and congress.

9. Deliberation of the SRC/BOJ and awarding of the Top 3 Winners for the individual and team projects in each research category and the NSTF Best 8 Projects. Other special awards (e.g., Best Poster, Best Presenter/s, Best Shoutout) and sponsored honorable awards by institutions/organizations may also be given to learners and advisors.

After

A. Online Mentoring Phase:

1. Orientation of the student researchers and advisors of the Best 8 Projects who will undergo online mentoring/coaching in the preparations needed for the submission of entries for pre-evaluation to International Science and Engineering Fair.

2. Each project will be assigned to a particular set of mentors who will be providing comments and suggestions in the research plan, manuscript, and other entry requirements. Mentees will communicate with their mentors thru e-mail and use the assigned project code (e.g., LS-I, LS-T, etc.) as the subject. It is also recommended to cc the NSTF focal person and advisor in all e-mail threads for the monitoring of the progress of the mentoring/coaching phase.

3. Clustered mentors assigned in each study will discuss their individual comments and suggestions to agree on the set of recommendations to be

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provided to the assigned mentee/mentees. If there will be dissensus among the members of the group of mentors, the chair will mediate and interpose if necessary.

4. The assigned focal person among the mentors will communicate the recommendations to the mentee/mentees thru e-mail in which the learners are expected to provide responses regarding the revisions needed.

5. All mentors will evaluate and deliberate on the eight projects for the selection of the official entries which will proceed to the cliniquing phase to be sent to international research and innovation competitions. It is also recommended that the learners with the guidance of their advisors and parents secure necessary travel requirements such as a passport and travel clearance for minors from the Department of Social Welfare and Development (DSWD). DSWD also requires obtaining copies of the Philippine Statistics Authority (PSA) birth certificate and marriage certificate of parents, affidavit of consent by both parents, affidavit of support by sponsoring agency, passport of companion, and official invitation from ISEF.

B. Science Camp (One-week cliniquing phase before ISEF):

1. The members of the Philippine Team will undergo pre-departure orientation regarding the preparations needed for the entry requirements (manuscript, project plan, ISEF forms, data logbook, certifications and/or prototype models), travel documents, schedule of activities of the ISEF and other related activities.

2. The student researchers will undergo communication and presentation skills enhancement training with the mentors.

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APPENDICES

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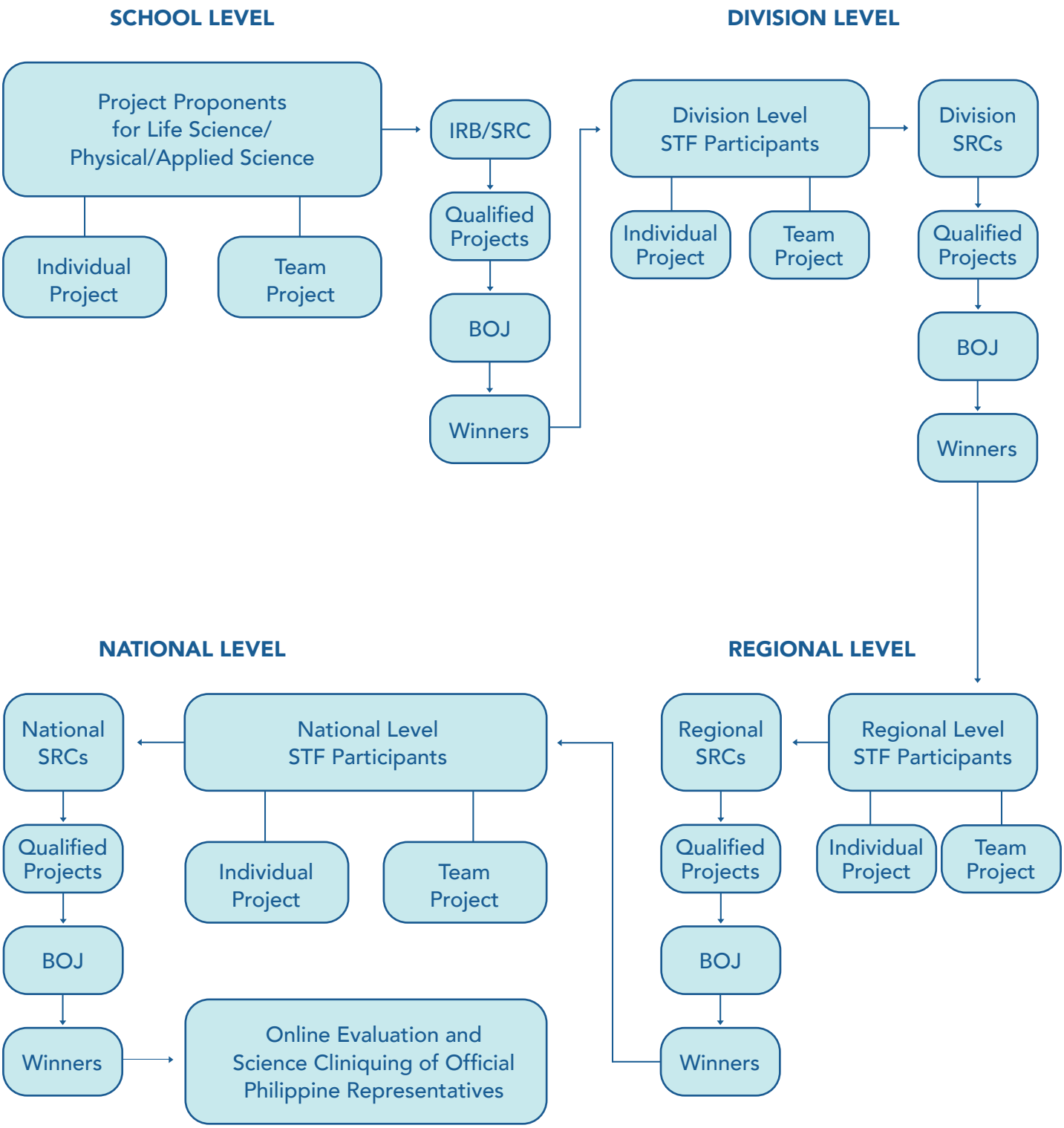
APPENDIX 1:

Schematic Diagram of the Flow of STF Activities



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APPENDIX 2:

TUKLAS Research Paper Format

I. Research Plan:

This is to be written prior to experimentation following the instructions below to detail the rationale, research questions, methodology, and risk assessment of the proposed research. (This is compiled separately from the rest of the research manuscript.)

All projects should include the following:

a Rationale: Include a brief synopsis of the background that supports your research problem and explain why this research is important and if applicable, explain any societal impact of your research.

b Research Question or Problem being addressed

c Goals/Expected Outcomes/Hypotheses

d Procedures: Detail all procedures and experimental design to be used for data collection.

e Risk and Safety: Identify any potential risks and safety precautions needed.

f Data Analysis: Examine, organize, and interpret data to answer research questions, or either accept or reject hypotheses.

g Bibliography: List at least five (5) major references (e.g., science journal articles, books, internet sites) from your literature review using the Chicago Manual of Style. If you plan to use vertebrate animals, one of these references must be an animal care reference.

II. Project Data Logbook:

A project data logbook is an organizational tool used by student researchers to organize and record narrative and evidence of the research activities including the planning, research design, drawings/ illustrations, procedures, data collection, analysis and presentation, inferences, and conclusions.

a Detailed and accurate notes in paragraphs or bullets show consistency and thoroughness which will be helpful when writing the research paper.

b It is also recommended to use hardbound record notebooks instead of spring notebooks to avoid tearing out pages, write entries using permanent pens, and minimize erasures.

c Procedures are to be presented in flow charts and data in organized tables. Each data entry (qualitative and quantitative) should also be accurately recorded, dated and signed by the supervising adult (if applicable) during the research activity.

d Each data logbook entry should also be dated and signed by the supervising adult (if applicable) during the research activity.

If erasures cannot be avoided, strike the word, phrase, sentence, or figure or numbers once and countersign each. Avoid using correction tapes and the likes.

III. Research Paper Format:

Science Project

1 INTRODUCTION - What relevant background information supports your research problem/ questions?

✓ Explain what is known or has already been done in your research area. Include a brief review of relevant literature. If this is a continuation project, a brief summary of your prior research is appropriate here. Be sure to distinguish your previous work from this year's project.

✓ Include a brief description on how your project will address an issue, concern or problem. Explain why this research is important and any societal impact of your research.

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2 METHODS – What procedures were carried out for the experimentation?

- ✓ Explain in detail what you did. What data did you collect and how did you collect those data? Discuss your control group and the variables you tested.
- ✓ Discuss your control group, the variables you tested, and the statistical treatment used. Handling and disposal of wastes may be included if necessary.
- ✓ DO NOT include a list of materials.

3 RESULTS - What were the result(s) of your project?

- ✓ Include tables and figures which illustrate your data.
- ✓ Include relevant statistical analysis of the data.

4 DISCUSSION - What is your interpretation of these results?

- ✓ What do these results mean? Compare your results with theories, published data, commonly held beliefs, and expected results.
- ✓ Discuss possible errors. Did any questions or problems arise that you were not expecting? How did the data vary between repeated observations of similar events? How were results affected by uncontrolled events?

5 CONCLUSIONS - What conclusions did you reach?

- ✓ What do these results mean in the context of the literature review and other work being done in your research area? How do the results address your research question? Do your results support your hypothesis/hypotheses?
- ✓ What application(s) do you see for your work?

6 REFERENCES-What are your sources?

- ✓ This section should not exceed one page. Limit your list to the most important references.
- ✓ List the references/documentation used which were not of your own creation (i.e., books, journal articles).
- ✓ Your reference list should be written based on the Chicago Manual of Style. For more information, you may visit the websites below:
  -http://www.chicagomanualofstyle.org/home.html
  -http://www.calvin.edu/library/knightcite/index.ph

Engineering Project

1 INTRODUCTION - What is your engineering problem and goal?

- ✓ What problem were you trying to solve? Include a description of your engineering goal.
- ✓ Explain what is known or has already been done to solve this problem, including work on which you may build. You may include a brief review of relevant literature.
- ✓ If this is a continuation project, a brief summary of your prior work is appropriate here. Be sure to distinguish your previous work from this year's project.

2 METHODS – What are your methods and procedures for building your design?

- ✓ Explain what you did. How did you design and produce your prototype? If there is a physical prototype, you may want to include pictures or designs of the prototype.
- ✓ If you tested the prototype, what were your testing procedures? What data did you collect and how did you collect that data?
- ✓ DO NOT include a separate list of materials.

3 RESULTS - What were the result(s) of your project?

- ✓ How did your prototype meet your engineering goal?
- ✓ If you tested the prototype, provide a summary of testing data tables and figures that illustrate your results.
- ✓ Include relevant statistical analysis of the data.

4 DISCUSSION - What is your interpretation of these results?

- ✓ What do these results mean? You may compare your results with theories, published data, commonly held beliefs, and/or expected results.
- ✓ Did any questions or problems arise that you were not expecting? Were these problems caused by uncontrolled events? How did you address these?
- ✓ How is your prototype an improvement or advancement over what is currently available?

5 CONCLUSIONS - What conclusions did you reach?

- ✓ Did your project turn out as you expected?
- ✓ What application(s) do you see for your work?

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6 REFERENCES – What are your sources?

- ✓ This section should not exceed one page. Limit your list to the most important references.
- ✓ List the references/documentation used which were not of your own creation (i.e., books, journal articles).
- ✓ Your reference list should be written based on the Chicago Manual of Style. For more information, you may visit the websites below:
  - http://www.chicagomanualofstyle.org/home.html
  - http://www.calvin.edu/library/knightcite/index.ph

Mathematics and Computer Sciences Project

1 INTRODUCTION - What is your research question?

- ✓ Explain what is known or has already been done in your research area. Include a brief review of relevant literature.
- ✓ If this is a continuation project, a brief summary of your prior work is appropriate here. Be sure to distinguish your previous work from this year's project.

2 FRAMEWORK – What is your framework?

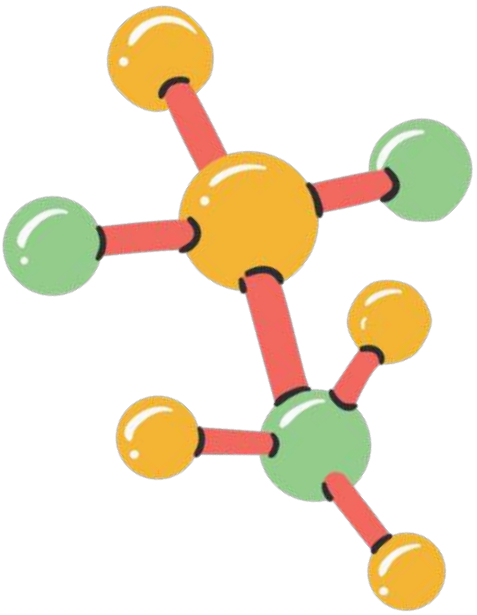
- ✓ Introduce the concepts and notation needed to specify your research question, methods, and results precisely.
- ✓ Define relevant terms, and explain prior/ background results. (Novel concepts developed as part of your project can be presented here or in Section 4, as appropriate.)

3 FINDINGS – What are your findings and supporting arguments?

- ✓ What did you discover and/or prove? Describe your result(s) in detail. If possible, provide both formal and intuitive/verbal explanations of each major finding.
- ✓ Describe your methods in general terms.
- ✓ Present rigorous proofs of the theory results – or, if the arguments are long, give sketches of the proofs that explain the main ideas.
- ✓ For numerical/statistical results, include tables and figures that illustrate your data. Include relevant statistical analysis. Were any of your results statistically significant? How do you know this?

4 CONCLUSIONS - What is your assessment of your findings?

- ✓ How do the results address your research question? And how have you advanced your readers' understanding relative to what is already known?
- ✓ Discuss possible limitations. Did any questions or problems arise that you were not expecting?



What challenges do you foresee in extending your results further?

- ✓ What application(s), if any, do you see for your work?

5 REFERENCES – What are your sources?

- ✓ This section should not exceed one page. Limit your list to the most important references.
- ✓ List the references/documentation used which were not of your own creation (i.e., books, journal articles).
- ✓ Your reference list should be written based on the Chicago Manual of Style. For more information, you may visit the websites below:
  - http://www.chicagomanualofstyle.org/home.html
  - http://www.calvin.edu/library/knightcite/index.ph

IV. Abstract:

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- The ISEF abstract does not include a bibliography. ISEF requires the bibliography as part of the research plan to be provided on Form 1A.

Purpose

- An introductory statement providing background or the reason for investigating the project topic.
- A statement of the problem the research is looking to solve or the questions being tested.

Procedure

- A brief overview of how the investigation was conducted, highlighting key points, and including methods and resources used.
- Do not provide details about materials used in the research unless they greatly influenced the procedure or were needed to conduct the investigation.
- An abstract should only include procedures done by the finalist. Do not include work done by a mentor (such as surgical procedures) or work done prior to the Finalist's involvement.

Observations/Data/Results

- This section should provide key results that lead directly to the conclusions.
- Do not include unnecessary data or observations about the results, nor tables, charts, graphs or other images. While these belong in the research paper or the project board, they do not belong in the formal ISEF abstract.
- Unless significant, do not include any of the experimental design difficulties encountered in research.

Conclusions

- This section should be confined to a short summary in 1-2 sentences. It is a reflection on the research process and results, which may include conclusive ideas, important applications, and implications of the research.

APPENDIX 3:

TUKLAS Display Board Format and Safety Guidelines

Display Guidelines

The project display using photo paper summarizes the research project and must focus on the proponent's work for this year's study, and if applicable, with only minimal reference to previous research. Tarpaulins will not be used in any level of Science Fair competition in support of the environmental advocacy of the government in reducing the consumption of non-biodegradable or non-recyclable materials.

The safety regulations that must adhere to or should be consistent with the guidelines set by the International Science and Engineering Fair (ISEF).

The following items should be seen in the project display: Abstract, Background, Objectives, Significance, Methodology, Results and Discussion, Conclusion, Recommendations, Bibliography and if applicable, Photo Credits (including illustrations and graphics).

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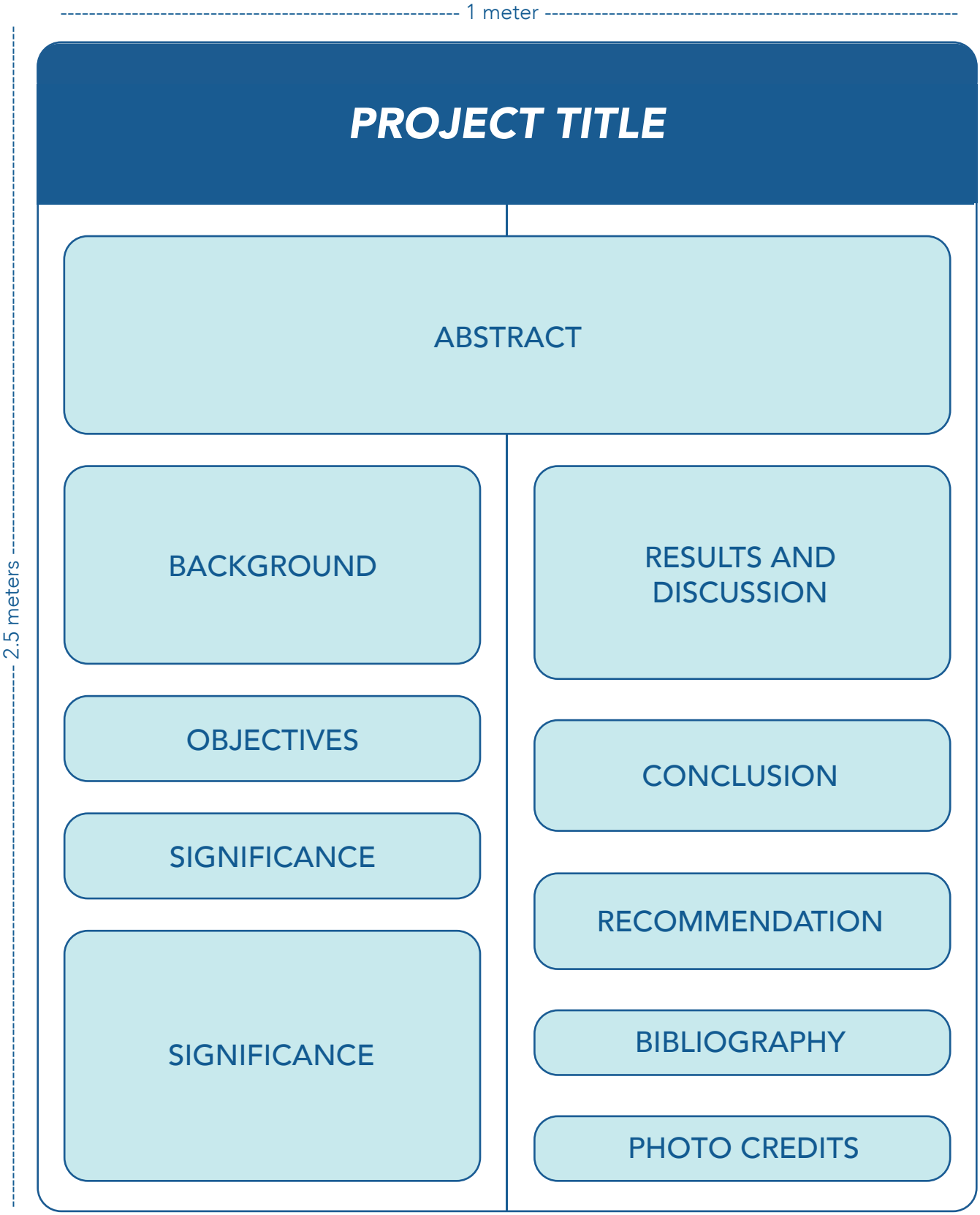
Physical Project Board Dimension:

The dimensions of the project board may not exceed 2.5 m high and 1m wide.



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Research Logbook:

These forms do NOT need to be in this particular order, just present in the logbook.

1. Signed ISEF Abstract
2. Signed Checklist for Adult Sponsor Form 1
3. Student Checklist Form 1A
4. Research Plan
5. Signed Approval Form 1B
6. All other pertinent ISEF forms

Photography/Images:

Display of photographs other than that of the learner/s MUST have a photo release signed by the subject, and if under 18, also by the guardian of the subject.

Any photographs, visual image, chart, table and/or graph is allowed if:

1. It is not deemed offensive or inappropriate (which included images/photos showing vertebrate animals/ humans in surgical, necrotizing or dissection situations) by the SRC, Display & Safety Committee.
2. It has a credit line of origin.
3. If it is from the Internet, magazine, newspaper, journal, etc. and a credit line is attached.
4. It is a photograph or visual depiction of the finalist.
5. It is a photograph or visual depiction for which a signed consent form is at the project.
6. Images used as backgrounds must also be credited.

Items NOT Allowed to be Displayed with the Project:

1. Awards, medals, business cards, flags, logos, CDs, DVDs, flash drives, brochures, booklets, endorsements, giveaway items and/or acknowledgements (graphic or written) unless the item(s) are an integral part of the project.
2. Postal addresses, Internet, email and/or social media addresses, QR codes, telephone and/or fax numbers of a student.
3. Active internet or email connections as part of the display or operating the project.

Safety Guidelines

Items NOT Allowed at the Project Display:

1. Living organisms, including plants
2. Soil, sand, rock, and/or waste samples, even if permanently encased in acrylic
3. Taxidermy specimens or parts
4. Preserved vertebrate or invertebrate animals
5. Human or animal food
6. Human or animal parts or body fluids
7. Plant materials (living, dead or preserved) that are in their raw, unprocessed or non-manufactured state (Exception: manufactured construction materials used in building the project or display)
8. All chemicals including water
9. All hazardous substances or devices (i.e.: poisons, drugs, firearms, weapons, ammunition, reloading devices, lasers, etc.)
10. Dry ice or other sublimating solids
    Sharp items (i.e.: syringes, needles, pipettes, knives, etc.)
11. Flames or highly flammable materials
12. Batteries with open-top cells
13. Glass or glass objects unless deemed by the Display
14. & Safety Committee to be an integral and necessary part of the project
    Lasers or laser pointers
15. Any apparatus deemed unsafe by the Scientific Review
16. Committee, the Display & Safety Committee of the Fair

Other Safety Restrictions:

1. Any inadequately insulated apparatus producing extreme temperatures that may cause physical burns is not allowed.
2. Any apparatus with unshielded belts, pulleys, chains, or moving parts with tension or pinch points must be for display only.
3. Project sounds, lights, odors or any other display items must not be distracting.
4. The Display & Safety Committee, and/or the Scientific Review Committee in various level of the Science Fair reserve the right to remove any project for safety reasons or to protect the integrity of the NSTF and its rules and regulations.

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APPENDIX 4:

Sample Abstracts

2018 ISEF Second Grand Award, Energy Physical	2018 ISEF Third Grand Award, Earth and Environmental Science
Solar-Tracking Adaptive Robot PV Panels	**Biosorption of Manganese Mine Effluents Using Crude Chitin from Shell Wastes of Philippine Bivalves**
By Cadores, Keith Russel ; Rivera, Eugene ; Manzanero, Joscel Kent Adviser: Johnny T. Samino	By Saquin, Elaine ; Molejona, Randy Adviser: Ronilo Aponte
The leading sources of energy globally are oil, coal, and natural gas - fossil fuels that can be depleted, and whose access and use greatly impact the environment. Hence, much study has been made of renewable energy sources and use, including harnessing solar power through a photovoltaic cell. The study aimed to improve the power harvesting and generating capacity of photovoltaic cells by designing and building a solar device that mimics a flower opening when the sun is out, tracks the sun's movement, closes when the light source is no longer detected and responds to humidity and temperature to maximize power generation. Six (6) photovoltaic panels are mounted on a base operated by servo motors and controlled by Arduino module. Electronics, servo motors, Arduino, and humidity sensors were acquired commercially. Other material included those repurposed from a broken umbrella and electric fan, and scrap acrylic sheets. The device's performance was compared to that of a fixed-mounted photovoltaic panels at different angles. The fixed setup generated 4.71W while the petal panels produced 6.95W, a 47.72% increase. Taxing the power consumption of the device to the power it generates gives an average of 6.09W. This translates to a 29.29% improvement from the 4.71W generated by the fixed panel setup. T Test for Dependent Means was used and showed that there is a significant difference between the power generations of the two setups ($p= 0.000261$, $a = 0.05$). This robotic design amplifies capacity to harness solar power through a photovoltaic cell.	The area around Ajuy River in Iloilo, Philippines is currently being mined for manganese ore, and river water samples exceed the maximum manganese contaminant level set by US-EPA. At the same time, the surplus of local bivalve waste is another environmental concern. Studies show that chemical treatment compromises water quality leaving toxic residues, and an alternative treatment process is biosorption, or using the physical and chemical properties of a biomass to adsorb heavy metals in contaminated water. The study aims to extract crude chitin from shell wastes of Bractechlamys vexillum, Perna viridis, and Placuna placenta and determine its adsorption capacity on manganese in simulated and actual mine water. Crude chitin was obtained by pulverization, deproteinization, demineralization, and decolorization of shells. Biosorption by flocculation followed 5 g: 50 mL chitin-to-water ratio. Filtrates were analyzed using MP-AES after 24 hours. In both actual and simulated mine water respectively, B. vexillum yielded the highest adsorption percentage of 91.43% and 99.58%, comparable to P. placenta of 91.43% and 99.37%, while significantly different to P. viridis of - 57.14% and 31.53%, ($p<0.05$). FT-IR validated the presence of chitin in shells based on carbonyl containing functional groups at peaks 1530-1560 cm-1 and 1660-1680 cm-1. SEM micrographs showed the amorphous and non-homogenous structure of chitin. Thus, crude chitin from B. vexillum and P. placenta can be bio-sorbents for water treatment of manganese-impacted effluents, and promote appropriate waste management of local bivalves.

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APPENDIX 5:

Innovation Expo Paper Format

Title Page and Table of Contents: The title page and table of contents allow the reader to follow the organization of the paper quickly.

Introduction:

1. Features and Specifications – This describes the details of your invention.
2. Market Trends and Opportunities – This part of the report must include three items: what inspired you to develop this invention, an explanation of what problem your invention will solve, and provide supporting details that your invention does not exist yet. Explain what products are already on the market that are somewhat like your invention and describe how yours differs.

Materials and Methods: Describe in detail how you made your invention. Explain what materials were used and how you put them together to make your invention. Your report should be detailed enough so that someone would be able to repeat the steps and make your invention. Directions on how to use the invention are also necessary here. You must include a detailed drawing(s) of your invention.

Results and Discussion: This is the essence of your paper. Compare your results with theoretical values, published data, literature and related studies, commonly held beliefs, and/or expected results. Include a discussion of possible errors, statistics, graphs, pages with your raw collected data, etc. How did the data vary between repeated observations of similar events? How were your results affected by uncontrolled events? What would you do differently if you repeated this project? What other experiments should be conducted?

Conclusions: This discusses the potential applications, possible customer benefits, and the impact of the innovation in solving problems and issues of today and tomorrow.

Acknowledgements: This part gives credit to those who have assisted you, including individuals, businesses, and educational or research institutions.

References/Bibliography: Your reference list should be written based on the Chicago Manual of Style.

APPENDIX 6:

Innovation Expo Display Board Format

Title	The title should be short but would capture the essence of the product/ invention
Picture	Picture of the product/ invention only
Overview	What problem is solved by the invention? What are the existing solutions and what limitations do these solutions have?
Key Features	What are the novelty features of this invention?
Benefits and Impact	What are the benefits/ impact of this invention?
Developers' Name	Who is/are the inventors?

Specifications: Each Display Board must have a 38" x 48" dimensions (portrait style)

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APPENDIX 7:

Checkpoints for SRC Review

TYPE OF FORM	WHO WILL FILL OUT?	WHEN TO FILL OUT?	WHEN IS IT REQUIRED?
Form 1 - Checklist for Adult Sponsor	Research Adviser	Before experimentation	Required for all Projects
Form 1A - Student Checklist	All student researchers	Before experimentation	Required for all Projects
Form 1B - Approval Form	All student researchers	Before experimentation	Required for all Projects
Research Plan/Project Summary	All student researchers	Before experimentation	Required for all Projects
Form 1C - Regulated Research Institution/ Industrial Setting Form	Adult supervising	After experimentation	Required if research conducted in a regulated research institution, industrial setting or any work site other than home, school or field
Form 2 - Qualified Scientist Form	Qualified Scientist/ Adult Supervising	Before experimentation	Required if research involving human participants, vertebrate animals, potentially hazardous biological agents and hazardous
Form 3 – Risk Assessment Form	Student Researcher/s Qualified Scientist/ Adult Supervising	Before experimentation	Required for all Projects
Form 4 – Human Participants Form	Student Researcher/s Institutional Review Board	Before experimentation	Required if research involves human participant **if in a regulated research institution use institutional approval forms*
Form 4A – Human Informed Consent Form	Student Researcher/s Research Participant	Before experimentation	Required if research involves human participant
Form 5A – Vertebrate Animal Form	Student Researcher/s Scientific Review Committee Veterinarian Designated Supervisor/Qualified Scientist	Before experimentation	Required for all research involving vertebrate animals that is conducted in a school/home/field research site

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TYPE OF FORM	WHO WILL FILL OUT?	WHEN TO FILL OUT?	WHEN IT IS REQUIRED?
Form 5B – Vertebrate Animal Form	Student Researcher/s Qualified Scientist	Before experimentation	Required for all research involving vertebrate animals that is conducted in Regulated Research Institution
Form 6A – Potentially Hazardous Biological Agents Risk Assessment Form	Student Researcher Qualified Scientist/Designated Supervisor Scientific Review Committee	Before experimentation	Required for research involving microorganisms, rDNA, fresh/frozen tissue(including primary cell lines, human and other primate established cell lines and tissue cultures), blood, blood products and body fluids.
Form 6B – Human and Vertebrate Animal Tissue	Student Researcher Qualified Scientist/Designated Supervisor	Before experimentation	Required for research involving fresh/frozen tissue (including primary cell lines, human and other primate established cell lines and tissue cultures), blood, blood products and body fluids. If the research involves living organisms, please ensure that the proper human or animal forms are completed.
Form 7 – Continuation/ Research Progression Projects Form	Student Researcher	Before experimentation	Required for projects that are a continuation/ progression in the same field of study as previous project.

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APPENDIX 8:

Learner Media Release Consent Form

I, the undersigned, hereby grant the Department of Education - National Science and Technology Fair the right to record, film, photograph, audiotape or videotape of me, my work, and performances.

I also grant to the right to edit, use, and reuse said products for nonprofit purposes including use in print, on the internet, and all other forms of media.

I also hereby release the Department of Education and its and employees from all claims, demands, and liabilities whatsoever in connection with the above.

I certify that I have read the Media Consent and Release Form and fully understand its terms and conditions.

Agreed and accepted by

Signature of Learner :_____
Date: _____
Address of Learner: _____

Parental Consent:

I certify that I am the parent or guardian of, _____, a minor under the age of eighteen years. I hereby agree to assume legal responsibility of his/her authorizations referred to in this Form.

_____
Parent/Guardian Signature Over Printed Name:

_____
Address:

_____
Date: _____

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APPENDIX 9:

Non-Disclosure Agreement Form (NDA) Form

I, _____, of legal age, Filipino, and with residence address at _____, have accepted voluntarily the role as **SRC/Judge/Mentor/Adviser.**

I understand that everything that I receive and access from the activity is the property of _____and is very confidential. Hence, I commit not to copy, reproduce, multiply, photograph, and disseminate any part of the instruments, materials, information, and documents. I am obligated to use the forms and materials only during the duration of the activity based on my TOR until _____.

I understand that if I am found to have violated the conditions set for the service I rendered, I will be held accountable for my actions.

CONFORME:

_____
Signature Over Printed Name
Date: _____
Contact Number: _____
E-mail address: _____
Witnessed by: _____

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APPENDIX 10:

Report of the Conduct of the STF Format

The consolidated report of the conduct of the STF must be submitted to the National Science and Technology Fair Technical Working Group before the conduct of the National Level Science Fair. The report should include the following:

1. Title

2. Table of Contents

3. Introduction/Rationale

4. Detailed Information

- General information
- SRC Deliberation (include the results, findings and recommendations)
- Program of Activities (day-to-day activities)
- List of Entries (include a brief profile of the research adviser of each entry)
- List of Winners (Research & Innovation Congress)
- Trend Analysis (results from 3 consecutive years)
- Financial Report

5. Conclusions

6. Recommendations

7. Appendix

APPENDIX 11:

List of Forms and Documents Required for Submission in All Levels of Competition

The following are the forms and manuscripts to be submitted in ALL levels of the competition:

1. Research Plan

2. Forms for all the Projects

- Checklist for Adult Sponsor
- Student Checklist (1A)
- Research Plan (NOTE: No need to attach the Research Plan Instructions)
- Approval Form (1B)
- Regulated Research Institutional/Industrial Setting Form (1C)

3. Forms depending on the type of research (e.g. involving humans, vertebrate animals, hazardous chemicals, etc.

- Qualified Scientist Form (2)
- Risk Assessment Form (3)
- Human Participants Form (4)
- Human Informed Consent Form
- Vertebrate Animal Form (5A)
- Vertebrate Animal Form (5B)
- Potentially Hazardous Biological Agents Risk Assessment Form (6A)
- Human and Vertebrae Animal Tissue Form (6B)
- Continuation Project Form (7)

4. Abstract (Maximum of 250 words)
The abstract should include the following:

- Purpose of the experiment
- Procedure
- Data conclusion
- The abstract may NOT include the following:
  - Acknowledgement
  - Work of procedures done by the mentor

5. Research Paper

6. Project Evaluation Form

7. Scanned copy of the log book in PDF format

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APPENDIX 12:

Innovation Expo Screening Form

TITLE OF THE PROJECT		
INDIVIDUAL/TEAM		
PROJECT PROPONENT/S		
CRITERIA	**WEIGHT**	**RATING**
ORIGINALITY AND CREATIVITY	35%	
COMMUNITY CONNECTION & IMPACT	25%	
MARKET ATTRACTIVENESS	25%	
UTILIZATION OF PATENT INFORMATION	15%	
TOTAL	100%	
COMMENTS		

Signature Over Printed Name
Date Signed:

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APPENDIX 13:

Innovation Expo Judges Form

TITLE OF THE PROECT		
INDIVIDUAL/TEAM		
PROJECT PROPONENT/S		
CRITERIA	**WEIGHT**	**RATING**
ORIGINALITY AND CREATIVITY	35%	
COMMUNITY CONNECTION & IMPACT	20%	
MARKET ATTRACTIVENESS	20%	
PROJECT PITCHING	15%	
UTILIZATION OF PATENT INFORMATION	10%	
TOTAL		
COMMENTS:		

Signature Over Printed Name
Date Signed:

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APPENDIX 14:

Official List of Participants Template

This template is to be used in the official endorsement of the school to division, division to region, and region to national.

Region: _____ Division: _____

No.	First Name	Middle Name	Last Name	Grade Level	School Name	Gender	Team/ Individual	Category	Team Code	Research Adviser

Data	Total	Data	
Total No. of Female		Total No. of Robotics and Intelligent Machines Project Entries	
Total No. of Male		Total No. of Mathematics and Computer Sciences Project Entries	
Total No. of Participating Schools		Total No. of Grade 7 Student Participants	
Total No. of Participating Private Schools		Total No. of Grade 8 Student Participants	
Total No. of Participating SP STEM Schools		Total No. of Grade 9 Student Participants	
Total No. of Participating SP STEM Male Student		Total No. of Grade 10 Student Participants	
Total No. of Participating SP STEM Female Student		Total No. of Grade 11 Student Participants	
Total No. of Individual Project Entries		Total No. of Grade 12 Student Participants	
Total No. of Team Project Entries		Total No. of Mathematics and Computer Sciences Project Entries	
Total No. of Life Sciences Project Entries		Total No. of Participating Teachers	
Total No. of Physical Sciences Project Entries			

Prepared by:_____
Mobile No:_____
School/Office Address:_____
Regional Coordinator: _____

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APPENDIX 15:

Suggested Timeline of Activities for the Conduct of Research Projects

	ACTIVITIES
May-June	**Preliminaries** • Refine and finalize research project plan • Carry out risk assessment and plan for precautionary measures to minimize hazards involved in the conduct of the research project • Communicate with the parent/guardian of researchers and secure a signed consent which allows the learner/s to conduct the research project • Check the attainability and availability of materials/test subjects, laboratories/ facilities, protocols/procedures, and experts in the field • Submission of letter of intent for collaboration with higher education institutions/research institutions • Submission of memorandum of agreement/understanding, research project • plan, list of materials and equipments to be used, timeline of activities and budget plan to research institution and qualified scientist • Revision of research project plan (if needed) • Preparation of International Science and Engineering Fair (ISEF) forms and data logbook • Secure Institutional Animal Care and Use Committee (IACUC) permit (for studies which will be using vertebrate animals) and IRB/SRC approval forms
June-July	• Preparation and collection of materials • Conduct of experimentation (e. g. Plant/Animal Identification/Authentication, Extraction Procedures, Preparation of Treatments, Material/Product Development, Pre-screening Tests, Testing Proper, Waste Disposal) • Data Collection and Analysis
August-September	• Writing of the Research Paper (Introduction, Methodology and Results and Discussion) • Preparation of requirements for LSTF SRC screening (manuscript, ISEF forms, data logbook, display board) • Local Science and Technology Fair
September-October	• Submission of school entries for DSTF SRC screening • Division Science and Technology Fair SRC Screening • Announcement of Qualified Entries for DSTF • Submission of revised copies of manuscript marked with tags based on the SRC recommendations/ suggestion and other documents • Division Science and Technology Fair

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October-November	• Submission of division entries for RSTF SRC screening • Regional Science and Technology Fair SRC Screening • Announcement of Qualified Entries for RSTF • Submission of revised copies of manuscript marked with tags based on the SRC recommendations/ suggestion and other documents • Regional Science and Technology Fair
December	• Submission of regional entries for NSTF SRC screening
January	• National Science and Technology Fair SRC Screening • Announcement of Qualified Entries for NSTF • Submission of revised copies of manuscript marked with tags based on the SRC recommendations/ suggestion and other documents
February-March	• National Science and Technology Fair • Announcement of National Level STF Winners
April	• Science Cliniquing • Preparation for travel requirements (DSWD travel clearance, passport, and others)
May	• International Science and Engineering Fair (ISEF)

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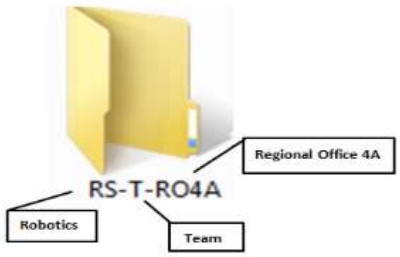
APPENDIX 16:

Project Labeling and Coding



Digital copies of manuscripts and forms must be submitted in this format

Example:

FOLDER CODE	CONTENT OF THE FOLDER	SAMPLE CONTENT OF THE FOLDER FOR FORMS
LS-I-RO1 **life science-individual-region 1*	**Manuscript:** LS-I-RO1-School Name	
	Folder containing the needed forms: **LS-I-RO1-Forms** **name of the folder where all the soft copies of the necessary forms are found*	**LS-I-RO1-Form1**
		LS-I-RO1-Form 2
		LS-I-RO1-Logbook

CODES	COLOR CODING
LS-I	GREEN
LS-T	YELLOW
PS-I	BLUE
PS-T	ORANGE
RIM-I	PINK
RIM-T	BROWN
MCS-I	RED
MCS-T	PURPLE

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APPENDIX 17:

End of Activity Report Format for the Regional/ Division/School Science and Technology Fair

The End of Activity Report for the Regional/Division/School Science and Technology Fair should contain the following sections:

1. **Title Page:** Include the name of the region/division and a clear, concise title for the report.

2. **Table of Contents:** List all the sections of the report and their corresponding page numbers to help readers navigate the document.

3. **General Information:** Provide a broad overview of the fair, including its purpose, goals, and objectives, as well as information on its structure, participants, and timeline.

4. **Results:** Present the results of the fair, including statistics and data related to the number of entries, participants, and winners, as well as any trends or patterns observed.

5. **List of Activities Conducted:** Provide a detailed list of the activities conducted during the fair, including dates, locations, and participants.
   List of Entries: Provide a list of all entries submitted to the fair, including the title, author, and category.

6. **List of Winners:** List the winners of the fair, including the title, author, and category.

7. **Financial Report:** Provide a detailed financial report of the fair, including expenditures and income, as well as any funding sources.

8. **Conclusions:** Summarize the main findings and conclusions of the fair, and provide recommendations for future action.

9. **Recommendations:** Provide specific recommendations for future action, based on the findings of the fair, and identify areas for improvement.

10. **Appendix:** Include any additional materials, such as detailed data tables, charts, or other relevant documents, that support the findings of the report.

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APPENDIX 18:

Review & Recommendation Report

Project Title: _____

Fair Division: [ ] Life Science [ ] Physical Science [ ] Robotics and Intelligent Machines
[ ] Mathematics and Computational Science
Category: [ ] Individual [ ] Team

Instruction: Please put a check [] in the appropriate column and if necessary, write recommendations on the space provided.

PART 1: REQUIRED FORMS FOR ALL RESEARCHES	COMPLETE	INCOMPLETE	RECOMMENDATIONS
1. Checklist for Adult Sponsor (1). Is it accomplished and signed?			
2. Student Checklist 1A. Is it complete and signed?			
If answer to item 5 is **YES**, must also have Form 7 (See Part II, item 13 below)			
If answer to item 7 is **Research Institution** or **Other**, must also have Form IC (See Part II, item 6 below)			
3. Research Plan. (Attachment to item 2 above). Does it include the following:			
A. Rationale. Does it Include a synopsis of background information that supports the research problem and explains why the research is important scientifically? If applicable, does it explain the societal impact of the research?			
B. HYPOTHESIS(ES), RESEARCH QUESTION(S), ENGINEERING GOAL(S), EXPECTED OUTCOMES. Is this based on RATIONALE?			
C. RESEARCH METHODS AND CONCLUSIONS. a. Procedures. i. Does it show all procedures and experimental designs, including methods for data collection? ii. There should be NO inclusion of work of mentor or others. iii. Parameters should NOT be too strict to allow for possible changes.			

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b. Risk and Safety. Does it identify all potential risks and safety precautions needed?			
c. Data Analysis. i. Does it describe all procedures for data analysis? ii. Parameters should NOT be too strict to allow for possible changes.			
D. BIBLIOGRAPHY. Does it have at least 5 major references? If using vertebrate animals, include 1 reference on animal care. (Chicago Manual of Style)			
Note: Items 3.E-H are needed ONLY for researches on HUMAN PARTICIPANTS, VERTEBRATE ANIMAL, POTENTIALLY HAZARDOUS BIOLOGICAL AGENTS (see attached Research Plan/Project Summary Instructions)			
E. HUMAN PARTICIPANTS RESEARCH. Does it provide for the following? a. Description b. Recruitment c. Methods d. Risk Assessment e. Protection of Privacy f. Informed Consent Process			
F. VERTEBRATE ANIMAL RESEARCH. Does it provide for the following? a. Potential ALTERNATIVES to vertebrate animal use b. Potential impact or contribution of research c. Detailed procedures d. Detail animal numbers, strain, sex , age, source, etc. e. Describe housing and oversight of daily care f. Disposition of animals at study termination			
G. POTENTIALLY HAZARDOUS BIOLOGICAL AGENTS RESEARCH. Does it provide for the following? a. Biosafety Level (BSL) Assessment and Determination b. Source of agent, specific cell line. c. Safety precautions d. Methods of disposal			
4. Approval Form 1B (for ALL students)			
5. Abstract			

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VERY IMPORTANT: See Part II, Risk Assessment (3) for

a. Studies involving protists, archaea and similar microorganisms.
b. Research using manure for composting, fuel production, or other non-culturing experiments.
c. Commercially-available color change coliform water test kits. These kits must remain sealed and must be properly disposed.
d. Studies involving decomposition of vertebrate organisms (such as in forensic projects).
e. Studies with microbial fuel cells.

PART 2: ADDITIONAL REQUIRED FORMS	COMPLETE	INCOMPLETE	RECOMMENDATIONS
6. Regulated Research Institutional or Industrial Setting Form (1C). Must be completed AFTER experimentation by the adult supervising the student research conducted in a regulated research institution or any work site aside from home, school or field. **Is it properly accomplished and signed by the DESIGNATED SUPERVISING ADULT?**			
7. Qualified Scientist Form (2) - for researches with human participants, vertebrate animals, potentially hazardous biological agents, Drug Enforcement Administration (DEA)-controlled substances; completed and signed BEFORE start of experimentation. **Is it properly accomplished and signed by the QUALIFIED SCIENTIST?**			
8. Risk Assessment Form (3) – for researches using hazardous chemicals, activities or devices and microorganisms exempt from pre-approval. Must be completed BEFORE experimentation. **Is it properly accomplished and signed by DESIGNATED SUPERVISING ADULT OR QUALIFIED SCIENTIST (when applicable)?**			
9. Human Participants Form (4) – for researches involving human participants not at a Regulated Research Institution. **Did the DESIGNATED ADULT SUPERVISOR/INSTITUTION approve the research BEFORE experimentation?**			

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10. Vertebrate Animal Form (5A) – for researches involving vertebrate animals that is conducted in a school/home/ field research site. **A. Is it properly accomplished, approved and signed by SRC BEFORE experimentation?** **B. Is it properly accomplished, approved and signed by DESIGNATED VETERINARIAN BEFORE experimentation?** **C. Is it properly accomplished, approved and signed by DESIGNATED SUPERVISOR OR QUALIFIED SCIENTIST (as applicable) BEFORE experimentation?**			
11. Vertebrate Animal Form (5B) – for researches involving vertebrate animals that is conducted at a Regulated Research Institution. **A. Does it have IACUC approval BEFORE experimentation?** **B. Is it properly accomplished, approved and signed by a QUALIFIED SCIENTIST/ PRINCIPAL INVESTIGATOR?**			
12. Potentially Hazardous Biological Agents Risk Assessment Form (6A) – for researches involving microogranisms, rDNA, fresh/ frozen tissue (including primary cell lines, human and other primate established cell lines and tissue cultures), blood, blood products and body fluids. **A. Does it have SRC/IACUC/ Institutional Biosafety Committee (IBC) approval BEFORE experimentation?** **B. Is it properly accomplished, approved and signed by a QUALIFIED or DESIGNATED SUPERVISOR BEFORE experimentation?** **C. Is it properly accomplished, approved and signed by the SRC BEFORE experimentation?** **D. Human Vertebrate Animal Tissue Form (6B) –** for researches involving fresh/ frozen tissue (including primary cell lines, human and other primate established cell lines			

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and tissue cultures), blood, blood products and body fluids. If research involves living organisms, ensure that the proper human or animal forms are completed. All researches using any tissue listed above must also complete Form 6A. Is it properly accomplished, approved and signed by a QUALIFIED or DESIGNATED SUPERVISOR BEFORE experimentation?			
13. Continuation/Research Progression Projects Form (7) – for researches that are a continuation/progression in the same field of study as a previous research. **A. 13.This form MUST be accompanied by the PREVIOUS YEAR'S ABSTRACT and RESEARCH PLAN** **B. Is it properly accomplished, approved and signed by the student/s?**			

PART 3: RESEARCH PAPER (See attached IMRAD Format)	COMPLETE	INCOMPLETE	RECOMMENDATIONS
1. COVER PAGE A. Is the research title present? B. Part 3 1 B: Is/Are the name/s of the student proponent/s present? C. Is/Are the appropriate persons credited? (The Research adviser and Research Consultants, if applicable MUST be present)			
2. INTRODUCTION Does it outline the research question and its significance within the topic discussed, making its relevance clear to readers in a CONCISE manner?			
3. METHOD Does it clearly and comprehensively provide the reader with a description of the methods used in the research?			
4. RESULTS Does it clearly and comprehensively SHOW the reader what the research came			

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up with? This should be the MAIN section of the paper.			
5. DISCUSSION Does this show what the findings in RESULTS mean?			
6. LIMITATIONS ON THE RESEARCH DESIGN AND MATERIAL Does this show knowledge and understanding of research limitations?			
7. CONCLUSION, NOTES, WORKS CITED AND APPENDICES/BIBLIOGRAPHY A. Does the conclusion briefly and clearly analyze what the paper proposed, discussed and concluded? B. Are there (in MLA format) possible Researcher Notes, the research paper's Works Cited, and Appendices?			

PART 4: RESEARCH ABSTRACT (MAX. 250 WORDS)	COMPLETE	INCOMPLETE	RECOMMENDATIONS
1. Does it clearly and concisely state the PURPOSE OF THE RESEARCH?			
2. Does it clearly and concisely state the PROCEDURE/S undertaken in the RESEARCH?			
3. Does it clearly and concisely state the DATA collected from the RESEARCH?			
4. 4.Does it clearly and concisely state the CONCLUSIONS OF THE RESEARCH?			

VERY IMPORTANT: There should be NONE of the following:

a. Acknowledgements of the research institutions and/or mentors with which the student were working
b. Self-promotions and external endorsements
c. Inclusion of work or procedures done by the mentor

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PART 5: RESEARCH LOGBOOK	COMPLETE	INCOMPLETE	RECOMMENDATIONS
1. Is the logbook intact and not tampered with? It should NOT be loose-leafed.			
2. Does the START DATE in the logbook match the START DATE in Student Checklist (1A)?			
3. Does the END DATE in the logbook match the END DATE in Student Checklist (1A)?			
4. Are all the entries in the logbook properly dated?			
5. Does the logbook show accurate and detailed notes and findings throughout the course of the research? Does it include data tables, and the like?			
6. Does the logbook show accurate and detailed description of procedures and processes conducted in the course of the research?			
7. Does the logbook show student notes and questions in the course of the research?			

[ ] Qualified [ ] Disqualified Reviewed by: _____ Date: _____

Reason/s for Disqualification: _____

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APPENDIX 19:

Project Evaluation Form

Title of Research Project: _____ **Code:** _____

Fair Division: [ ] Life Science [ ] Physical Science [ ] Robotics and Intelligent Machines
[ ] Mathematics and Computational Science **Category:** [ ] Individual [ ] Team

CATEGORY	SCORE
1. CREATIVE ABILITY (30) 1. Does the project show creative ability and originality in the: a. questions asked? b. approach to solving the problem? c. analysis of the data? d. interpretation of the data? e. use of equipment? f. construction or design of new equipment 2. Creative research should support an investigation and help answer a question in an original way. 3. A creative contribution promotes an efficient and reliable method for solving a problem. When evaluating project, it is important to distinguish between gadgeteering and ingenuity.	
2. SCIENTIFIC THOUGHT (30) (If an engineering project, please see 2b Engineering Goals.) 1. Is the problems stated clearly? 2. Was the problem sufficiently limited to allow plausible approach? Good scientists can identify important problems capable of solutions. 3. Was there a procedural plan for obtaining a solution? 4. Are the variable clearly recognized and defined? 5. If controls were necessary, did the student recognize their need and were they used correctly? 6. Are there adequate data to support the conclusions? 7. Does the finalist/team recognize the data's limitations? 8. Does the finalist/team understand the project's ties to related research? 9. Does the finalist/team have an idea of what further research is warranted? 10. Did the finalist/team cite scientific literature, or only popular literature (e.g. local newspapers, Readers Digest)? **ENGINEERING GOALS** 1. Does the project have a clear objective? 2. Is the objective relevant to the potential user's needs? 3. Is the solution: workable? Acceptable to the potential user? Economically feasible? 4. Could the solution be utilized successfully in design or construction of an end product? 5. Is the solution a significant improvement over previous alternatives or application? 6. Has the solution been tested for performances under the conditions of use?	
3. THOROUGHNESS (15) 1. Was the purpose carried out to completion within the scope of the original intent? 2. How completely was the problem covered? 3. Are the conclusions based on a single experiment or replication? 4. How complete are the project notes? 5. Is the finalist/team aware of other approaches or theories?	

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6. How much time did the finalist or team spend on the project?
7. Is the finalist/team familiar with scientific literature in the studied field?
8. Are the relevant details (including the pages and dates) of the experiment recorded in the research data logbook?

4. SKILL (15)

1. Does the finalist/team have the required laboratory, computation, observational and design skills to obtain the supporting data?
2. Where was the project performed (i.e. home, school laboratory, university laboratory) Did the student or team receive assistance from parents, teachers, scientists or engineers?
3. Was the project completed under adult supervision, or did the student/team work largely alone?
4. Where did the equipment come from? Was it built independently by the finalist or team? Was it obtained on loan? Was it part of a laboratory where the finalist/team worked?

5. CLARITY (10)

1. How clearly does the finalist or team discuss his/her/their project and explain the purpose, procedure, and conclusions? Watch out for memorized speeches that reflect little understanding of principles.
2. Does the written material reflect the finalist's or team's understanding of the research?
3. Are the important phases of the project presented in an orderly manner?
4. How clearly is the data presented?
5. How clearly are the results presented?
6. How well does the project display explain the project?
7. Was the presentation done in a forthright manner, without tricks or gadgets? Did the finalist/team perform all the project work, or did someone help?

TOTAL

Signature Over Printed name of Judge

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DEPARTMENT OF EDUCATION

NATIONAL SCIENCE AND TECHNOLOGY FAIR (NSTF)

BOARD OF JUDGES CONSOLIDATED SCORE SHEET

PHYSICAL SCIENCE – TEAM

Code	RESEARCH PROJECT TITLE	JUDGE 1	JUDGE 2	JUDGE 3	TOTAL	RANK

_____
(Signature over printed name)
Judge 1
Date Signed:

_____
(Signature over printed name)
Judge 2
Date Signed:

_____
(Signature over printed name)
Judge 3
Date Signed:

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NATIONAL SCIENCE AND TECHNOLOGY FAIR (NSTF)
BOARD OF JUDGES – INDIVIDUAL SCORE SHEET

PHYSICAL SCIENCE - INDIVIDUAL

Code	RESEARCH PROJECT TILE	CRITERIA					TOTAL
		Creative Ability 30	Scientific Thought 30	Thoroughness 15	Skill 15	Clarity 10	

_____
(Signature over printed name)
Judge

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REFERENCES

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THE FOLLOWING REFERENCES ARE USED TO SUPPORT THE AFOREMENTIONED GUIDELINES:

International Rules for Pre-College Science Research Guidelines for Science and Engineering Fairs 2022–2023
https://sspcdn.blob.core.windows.net/files/Documents/SEP/ISEF/2023/Rules/Book.pdf

Roles and Responsibilities of Students and Adults
https://www.societyforscience.org/isef/international-rules/roles-and-responsibilities-of-students-and-adults/

REGENERON ISEF - Rules Wizard
https://ruleswizard.societyforscience.org

Research Plan Templates
https://www.societyforscience.org/isef/2021-resources/

International Rules for Pre-Collegiate Research: Guideline for Science and Engineering
https://sspcdn.blob.core.windows.net/files/Documents/SEP/ISEF/2023/Resources/Changes-to-International-Rules-2022-2023.pdfb

ISEF Overview of Forms and Dates
https://www.societyforscience.org/isef/overview-of-forms-and-dates/

Intel ISEF Affiliated Fair Judging Guidelines
https://www.sefi.org/hsef/IntelISEF%20Judging%20Guidelines.pdf

ISEF Grand Award Judging Criteria
https://www.societyforscience.org/isef/grand-award/criteria/

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SCHOOL, DIVISION, REGION, AND NATIONAL SCIENCE AND TECHNOLOGY FAIR GUIDEBOOK

First Edition | May 2022

Bureau of Curriculum and Development
DepEd Complex, Meralco Avenue, Pasig City 1600
633-7216/ 638-8634 | www.deped.gov.ph

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